CHARLES KONIG

1774–1851

From a drawing by E. U. EDDIS, 1831

A HISTORY OF THE FIRST HUNDRED YEARS OF THE MINERAL COLLECTION IN THE BRITISH MUSEUM

with particular reference to the work of Charles Konig

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THE great collections of " Books and Curiosities " brought together during the many years of his long life by Sir Hans Sloane were acquired by the Nation in 1753 under the terms of his will. Montagu House in Bloomsbury, which with its gardens, stood on the site now occupied by the buildings of the British Museum, was purchased to provide, as the Act read, " one general repository for the better Reception and more convenient Use of the said Collections, and of the Cottonian Library, and of the Additions thereto ". The Collections referred to were " the Museum or Collection " of Sir Hans Sloane and the Harleian Collection of Manuscripts.[1]

The Sloane Collection contained some 10,000 specimens of minerals and fossils listed in Sloane's manuscript catalogues. Relatively few of these are identifiable today but it is clear that at the time of Sloane's death no comparable collection was known in Britain. The mineral collection has been well described by Miss J. M. Sweet, M.B.E., B.Sc., for 34 years a member of the staff of the Department of Mineralogy of the British Museum (Natural History).[2]

Sloane himself laid no claim to being especially a mineralogist or " fossilist " and his description of the " stones, earths, sands, etc. " he brought back from Jamaica in 1689 was his only mineralogical publication. He may have been familiar, of course, with ancient " lapidaries " and their folk-lore of charms and remedies, and perhaps with the far more sensible writings of Agricola (Georg Bauer) of which the best known, " De re metallica " was published in Basle in 1556. In Sloane's own day Bromell[3] and Linnaeus had proposed classification systems of Minerals. In England John Woodward, M.D., F.R.S., founder of the Woodwardian Chair of Geology at Cambridge, had written his " Naturalis Historia Telluris " with several papers referring particularly to minerals and ores of metals (1726), but it is likely that Sloane paid little attention to it for he had had a violent quarrel with Woodward at a Council meeting of the Royal Society in 1710 and Woodward had left the Society because of it.

The collections were moved from Sir Hans Sloane's House in Chelsea to Montagu House and the Museum was opened to the public, to a limited extent, in 1759. James Empson was appointed under-librarian in charge of the Natural History Department. He had been assisting Sloane with his collections for some years

[1] Sweet (Jessie M.). Sir Hans Sloane: Life and Mineral Collection. Part I: Life. *Nat. Hist. Mag.*, **5**, 1935, p. 63, and de Beer (G. R.). *Sir Hans Sloane and the British Museum.* London, 1953: p. 152.
[2] Sweet (Jessie M.). op cit., Part II: Mineral Collection. *Nat. Hist. Mag.*, **5** : 1935, pp. 97–116.
[3] Bromell (Magnus von). *Lithographiae svecana* . . . . 2 pt. Upsala, 1726, and *Mineralogie et Lithographica Svecana* . . . . Translated into German. 148 pp. Stockholm & Leipzig, 1740. [1st ed. 1730].

before Sloane's death and he was an enthusiastic admirer of the collection of " Fossils and Minerals "[1] but he could spare only a small part of his time to arrange them in the room allotted. He reported in 1756, before the Museum was opened, that he found himself already short of space for the Minerals and was " reluctantly considering placing duplicates in the base story ".

The published description of the arrangement of the Mineral Room in " The general contents of the British Museum . . . " (1761) shows that the " minerals " were chiefly in closed cabinets but two tables (i.e. table-cases) displayed the more attractive mineral specimens.[2]

Empson died in 1765 and after his death no one at the British Museum took much interest in the minerals or in the " figured fossils " until after the appointment in 1787 of Dr. E. W. Gray[3] as Keeper of the Department of Natural History and Modern Curiosities.

In the meantime in Western Europe rapid progress was being made in the study of minerals. Systems of Mineralogy based on the then known chemical characters of minerals had been published by Wallerius (1747) and by Cronstedt (1758). Cronstedt had introduced the use of the blowpipe for the chemical identification of minerals and Torbern Bergmann had initiated the methods of chemical analysis leading to the fundamental discoveries of " multiple proportions " by J. J. Berzelius (1814). In the same period Romé de l'Isle (1772) and René-Just Haüy (1781) had laid the scientific foundations of Crystallography.[4]

The famous mining academy at Freiberg in Saxony was founded in 1765 and Abraham Gottlob Werner[5] was appointed Instructor in Mineralogy and Inspector of Mining there in 1775. His teaching was spread throughout the world by his pupils, and his classifications of minerals and rocks were widely adopted. Robert Jameson, Professor of Natural History in Edinburgh, was one of his most devoted followers and " was mainly instrumental in introducing the Wernerian doctrines into Britain ".[6, 7] Other powerful advocates in the British Isles of the teachings of Werner were Richard Kirwan and George Mitchell in Dublin.[5, 8]

On the continent of Europe the printing of catalogues of the great mineral collections was quite fashionable at the end of the eighteenth century. Three such

[1] At this period rocks, earths, etc., were all placed under the heading of " minerals " as well as true minerals as now defined.

[2] British Museum. *The General Contents of the British Museum; with remarks. Serving as a directory in viewing that noble cabinet.* Pp. xii, 103. 8°. London, 1761.

—— op cit. *Second edition.* xxiii, 210 + [30]. 12°. London, 1762.

Anon. *Brittisches Museum nebst der Beschreibung des berühmten Naturalien u. Antiquitaeten-Kabinets des Hrn. Ritters Hans Sloane. . . . Aus dem Englischen nach der neuesten Ausgabe.* Berlin, 1764.

[3] Gray, Edward Whitaker (1748–1806). He was one of the Secretaries of the Royal Society (1797–1804). Previous to 1773 he was librarian to the Royal College of Physicians. He graduated M.D., was elected a fellow of the Royal Society in 1779, and he was one of the first associates of the Linnean Society. *Dictionary of National Biography*, **23** : 1890, p. 7.

[4] First introduced as a name for descriptions and classification of crystals by Moritz Anton Cappeller in his *Prodromus Crystallographiae*, published in Lucerne in 1723.

[5] Eyles (V. A.). Abraham Gottlob Werner (1749–1817) and his position in the history of the mineralogical and geological sciences. *Hist. Sci.*, **3** : 1964, pp. 102–115.

[6] Geikie (Sir A.). *The Founders of Geology*, 1897, p. 123.

[7] Sweet (Jessie M.). Robert Jameson in London, 1793. *Ann. Sci.*, **19** : 1965, pp. 81–116.

—— Robert Jameson's approach to the Wernerian theory of the Earth, 1796. *Ann. Sci.*, **23** : 1967, pp. 81–95.

[8] —— Robert Jameson's Irish Journal, 1797. *Ann. Sci.*, **23** : 1967, pp. 97–126.

catalogues were the earliest works of Romé de l'Isle (1767–73). Werner catalogued the mineral cabinet of Pabst von Ohain in Leipzig (1791–93),[1] and Mohs did the same for the Viennese banker von der Null,[2] while Baron Ignaz von Born had published in 1790 a two-volume catalogue of the collection of Mlle. E. de Raab.[3]

It was unfortunate that publishing catalogues was not fashionable also in Britain. It is known that in 1794 there were half a dozen fine collections of minerals in England, but of printed catalogues all we have is one of the collection of Philip Rashleigh of Menabilly by himself, and a catalogue of the diamonds in the collection of Sir Abraham Hume by Count Bournon (see below p. 240).[4]

The birth and growth of chemical mineralogy in Sweden and of crystallography in France seems to have attracted little attention in England until near the turn of the century. Then, in 1799, two important collections of minerals were acquired by the British Museum; the first important additions to the Collection since the foundation of the Museum.

One of these collections was a small one of 868 specimens but it consisted of choice specimens. It was bequeathed to the Museum by the Rev. Clayton Mordaunt Cracherode, one of the Trustees, and it was accompanied by a catalogue following the System of Linnaeus. The other collection was that of Charles Hatchett, F.R.S.[5] Its purchase for £700 followed a recommendation made by a committee of which the members were Sir Joseph Banks, Mr. Charles Greville and Mr. Philip Rashleigh. The committee remarked on the lack in the Museum of good British minerals and gave it as their opinion that " a systematic collection of minerals is much wanted in the British Museum ". The committee stated that the collection of about 7,000 specimens consisted of crystallized minerals classified under nine headings: " bituminous, ores, volcanic products, systematic strata of rocks, strata of rocks of the Hartz arranged by Lasius,[6] strata of rocks, arranged by Voight (*sic*),[7] and strata of rocks of Transylvania collected by Fichtel ".[8] It also included a fine set of Russian minerals from Count Apollos de Moussin Poushkin.[9]

Lastly the Committee reported that " Mr. Hatchett is willing to undertake with

[1] Werner (A. G.). *Ausfürliches und systematisches Verzeichnis des Mineralien-Kabinets des . . . Herrn K. E. Pabst von Ohain.* 2 vols., Freiberg & Annaberg, 1791–93.

[2] Mohs (Friedrich). *Des Herrn J. F. von der Null Mineralien-Kabinet . . . als Handbuch der Orycto-gnosie . . . gemacht von F. Mohs.* 3 Abth. Vienna, 1805.

[3] Born (Ignaz von). *Catalogue méthodique et raisonné de la collection des Fossiles de Mlle. Eléonore de Raab.* Par Mr. de Born. 2 vols., Vienna, 1790.

[4] Bournon (Jacques Louis de). *Catalogue raisonné des diamants dans le cabinet de Sir Abraham Hume, Bart., . . .* 4to, London, 1815.

[5] Hatchett (Charles) (1765–1847). An eminent chemist. He was elected F.R.S. in 1797, was a member of the short-lived British Mineralogical Society (1799–1806) and of the Linnean Society. He resided at Belle Vue House in Chelsea, a mansion built by his father in 1771. It stood at the west corner of Beaufort Place, now Beaufort Street, and in 1829, commanded " beautiful views of the Thames and the distant Surrey hills ". See Thomas Faulkner's *History of Chelsea*, 1829, in which is a portrait of Hatchett facing p. 89, vol. 1. The Linnean Society has a marble bust of him in its Apartments.

[6] Lasius (Georg Siegmund Otto) (1752–1833). Published *Beobachtungen über d. Harzgebirge . . .*, 2 vols., Hannover, 1789–90.

[7] Voigt (Johann Karl Wilhelm) (1752–1821). Born at Allstadt in Weimar, 20th February, 1752. Published various works on the minerals of Weimar, Thuringer Wald, Ilmenau Bergbau, etc. Died 1st January, 1821, at Ilmenau.

[8] Fichtel (Johann Ehrehreich von) (1732–95). Published *Beytrag zur Mineralgeschichte von Sieben-bürgen*, 2 vols., Nuremberg, 1780; also *Mineralogische Bemerkungen von den Karpathen*, Vienna, 1791; and *Mineralogische Aufsätze*, 1 vol., 1794.

[9] A manuscript list of this collection is preserved in the Department of Mineralogy.

assistance . . . to arrange the collection systematically and wishes to retain permission to take for analysis small portions from specimens not yet analysed; a copy (of such analysis) to be sent to the officer in charge . . . ; and to assist in correcting errors [in classification] he may thus disclose ".

It seems that all these recommendations were agreed to by the Trustees. The collection was purchased[1] and Hatchett assisted in arranging it. It was in the course of this work that Hatchett, in the summer of 1801, noticed and borrowed for analysis a specimen from Connecticut sent by John Winthrop to the Royal Society in 1734. It proved to contain a new element which Hatchett named Columbium, after Christopher Columbus, and the mineral containing it is now named Columbite.[2]

All three mineral collections, Sloane's, Cracherode's, and Hatchett's were now united in the Mineral Room, Gray selecting from the Sloane Collection suitable specimens. In this he was assisted no doubt by Hatchett, and, in 1803, he was authorized by the Trustees to engage Count Bournon[3] to give further help and to work on the catalogue.

Bournon helped Gray to examine the mineral collections including the specimens " scattered and lost in the dust of the basement " (see above p. 238). Gray[4] reported " that he added to the catalogue, preserved useful specimens, lotted and made a catalogue of the duplicates, and consigned the rejected specimens to burial in the garden ".

On 27th December, 1806, E. W. Gray died. He was succeeded by Dr. George Shaw[5] and on 19th February, 1807, an assistant was appointed. This was Charles Konig who took charge of the collection of minerals and " figured fossils ". His full name was Karl Dietrich Eberhardt Konig.[6] Born in Brunswick in 1774, he had been a student at the University of Göttingen, and had come to England at the end of 1800, already a botanist of some experience, to arrange the collections of Queen Charlotte at Kew Palace. Later he became assistant to Jonas Dryander, librarian to Sir Joseph Banks. In 1805 he became co-editor with Dr. John Sims[7] of the Annals of Botany to which he contributed seven papers in 1806 and 1807. He had also translated from several European languages botanical papers, and in 1807 a

[1] With funds provided by the Major Arthur Edwards bequest. See Edwards (Edward), *Lives of the Founders of the British Museum*, London, 1870, p. 443.

[2] See Sweet (J. M.), op. cit., 1935, pp. 115–116.

[3] Jacques, Louis, Comte de Bournon, was a French Royalist refugee, a pupil of Romé de l'Isle, and an enthusiastic mineralogist. He had been in England since 1794 and he had worked on three well-known English collections of minerals, namely those of Sir John St. Aubyn, Sir Abraham Hume, as mentioned above, and the Right Honourable Charles Greville. He was the first Foreign Secretary of the Geological Society of London, 1810–13.

See Lacroix (A.). *Figures des Savants*, Paris, 1932, vol. 1, pp. 169–176; also in *Mém. Acad. Sci. Inst. Fr.*, **60** : 1931, pp. vii–xiii and lxxxiii–lxxxvi.

[4] The Trustees authorized an auction of 2,000 specimens in 1803. The sale realized £258 13*s.* 8*d.* Gray reported that Bournon had been very helpful. He was paid £50. (Report of 5th August, 1803.)

[5] Shaw (George) (1751–1813), had entered Magdalen College, Oxford, at 14 and graduated in 1769. He studied medicine in Edinburgh for three years, returned to Oxford and was appointed deputy lecturer in botany. He took his doctorate in medicine in 1787. He was elected F.R.S. in 1789 and in 1791 was appointed under-librarian under E. W. Gray in the Department of Natural History. Like Gray he took part in the founding of the Linnean Society and he became one of the Vice-Presidents. *Dictionary of National Biography*, **51** : 1897, p. 436.

[6] König or Konig. The British Museum Catalogue of Printed Books indexes him as Koenig. In the Dictionary of National Biography his name appears as " Konig or König ". He always signed his museum correspondence as " Charles Konig " without the umlaut and this is the spelling followed here.

[7] Sims (John), 1748–1831. F.R.S. One of the original members of the Linnean Society.

translation by him of C. P. J. Sprengel's " Introduction to the study of Cryptogamous Plants . . . " was published.

Thus up to the time of his appointment to the Museum his work and interests had been mainly botanical but it was now to mineralogy, and later to palaeontology, that he turned his attention. On his appointment Konig was at first instructed to spend two days a week on preparing a " hand catalogue " of the minerals and, later (May), to spend " the whole of his time, on preparing a descriptive catalogue of the consolidated collections of Sloane and Hatchett . . . following the new emendated system of Werner ". He received a further instruction (10th February, 1809) " to make distinct catalogues of all the different collections as presented by any individuals (such as the Rt. Hon. Lord Grenville has recently presented (from Peru)) and to incorporate them also in the general catalogue ".[1]

By the end of the first year, 1807, he had catalogued the contents of 55 drawers, about one quarter of the collection, and in the summer of 1808 we read of him " selecting from the minerals deposited in the basement story such specimens as he thought proper to be preserved in the General Collection ".

In spite of an interruption in this work, referred to below, he reported in December, 1809, that " he has nearly finished his catalogue and commenced a revision of the same . . . ".

This catalogue is not very informative, and Konig cannot have had time to give the specimens more than a cursory examination. It was written on loose sheets which Sir Lazarus Fletcher, Keeper of Minerals, had bound up in two volumes in 1903.

The exhibited parts of the Collection, in Room VIII on the first floor of the House, as it was in 1808 is briefly described in the first edition of the " Synopsis ".[2] Miscellaneous minerals and rocks, the " local " collection, were exhibited on shelves in cases round the room. Case I contained " a collection of Derbyshire minerals, formed by Mr. White Watson,[3] partly arranged according to the succession of strata in which they are found ". Case 5 contained " Siberian minerals " [probably from the Moussin Poushkin collection]; cases 8 and 9, " Volcanic Productions from Mounts Vesuvius, Somma, and Aetna " [probably Hamilton collection]; and case 10, " Rock Stones from Germany, shelf 1–4 from the Hartz, 6 and 7 from Saxony " [Hatchett Collection]. Two tables (cases) displayed " the valuable donation of Mr. Cracherode ", and on part of table 2 " Various articles chiefly selected out of the Sloanean Collection "; and in Division 8 Meteoric Stones. Another meteorite, the Pallas iron, Krasnojarsk, presented by the Academy of Sciences of St. Petersburg in 1776, was exhibited in case 13 as " a large cellular mass of native iron, with much of the olivine-like substance, from Siberia ". In addition to the exhibited specimens, " a much more extensive series arranged according to Werner's system of mineralogy in 210 drawers is in imposts round the room ".

While this work of cataloguing was going on the chance came in 1809 quite

[1] A manuscript catalogue of this collection, 189 specimens chiefly ores, is preserved in the Department of Mineralogy.

[2] *Synopsis of the Contents of the British Museum*, 1808.

[3] Watson (White), Derbyshire geologist, Published in 1811 " A delineation of the strata of Derbyshire . . . . from Bolsover . . . to Buxton ".

unexpectedly for the Museum to acquire another mineral collection of great repute. The Rt. Hon. Charles Francis Greville (1749–1809), second son of the first Earl of Warwick and a nephew of Sir William Hamilton, died suddenly in April 1809. His mineral collection has been mentioned above in connection with Bournon's work on it. It was in Greville's house in Paddington Green. Bournon had said that it " was far superior [to the Museum collection] and indeed it was reputed as good as any on the continent of Europe ".

Greville left no will nor had he made any provision for the preservation of his collection as a whole. Konig lost no time in recommending the Trustees to acquire it, writing to Sir Joseph Banks about it on 24th April, 1809. On 5th February, 1810, by which time the collection was advertised for public sale, he wrote again proposing through Mr. Planta, the Principal Librarian, a scheme for the arrangement of three separate collections: oryctognostic [i.e. mineralogical]; British minerals arranged in cases by counties; and Technical, adding: " should the Trustees think it convenient to purchase the matchless collection of the late Mr. Greville . . . the plan proposed or any modification of the same ought with the assistance of the collections already formed easily be executed ". The Trustees acted promptly and on their petition to Parliament, a committee was appointed " to examine the collection and to put a value on it ".[1] The committee reported that the collection was " equal in most, and in many parts superior, to any similar collection which any of us have had an opportunity of viewing in this or other countries ". On the report Parliament voted a special grant and the collection was bought for £13,727 (22nd May, 1810).

The collection contained about 20,000 specimens and included a collection formed by Baron Ignaz von Born (1742–91) of Prague, which Greville had purchased for £1,000.[2] The cut stones in the collection had been sold separately. On the other hand the collection contained fragments of seven meteorites, one, Tabor, acquired with the von Born collection.[3]

Count Bournon who had worked on the Collection for some 12 years (see above, p. 240) now made great efforts to persuade the Trustees to put him in charge of the Greville collection, and its removal from Paddington Green to the Museum but it appears that Konig was opposed to this and he undertook the removal of the specimens himself.

In a minute of the Trustees of 26th June, 1810 they gave instructions: " that the gentlemen who are entrusted with the making of an inventory of the minerals purchased from the late Mr. Greville be directed not to make any alteration in the arrangement of the classes without a special report to a meeting of the Trustees and receiving the sanction of the meeting on such report".

[1] Extracts from the Journals of the House of Commons. 26th March, 1810, *in Acts and Votes of Parliament relating to the British Museum* . . . . London, 1814, pp. 97–100.

[2] This collection was accompanied by a manuscript catalogue which is still preserved in the Department of Mineralogy. No catalogue of the Greville Collection as a whole has survived. *History of the Collections contained in the Natural History Departments of the British Museum*, 1904 : **1**, pp. 359, 416 and 424.

[3] This meteorite and others in the Greville collection were those on which Edward Howard (and Count Bournon) made their " Experiments and Observations on certain stony and metallic substances which at different times are said to have fallen on the Earth, . . . ". *Phil. Trans. R. Soc.*, 1802, pp. 168–212. A few further notes on meteorites added to the collection in Konig's time are given in Appendix II (p. 259).

Konig made a list of the contents of each drawer and laid it before the Trustees on 13th July, 1810. Unfortunately these lists have not been preserved.

He reported that over and above the 14,800 specimens counted " a number of specimens, on account of their [large] size, were not added to the collection, as also a quantity of rubbish which Mr. Konig has not yet found time to examine ". He records that he has discussed with Sir Joseph Banks the arrangement of the collection of minerals just acquired by the Museum and has devised a satisfactory plan. He added that this "may be deemed preferable to the scheme lately proposed by M. de Bournon, of forming two collections of the same kind, the one for the man of science and the other for the stupid gaze of the visiting vulgar ".[1]

Count Bournon, who one must remember was very put out at not having been appointed to take charge of the Greville Collection, seems to have taken a poor view of the way the collection was handled. He is reported to have said that the tickets placed in the trays [by himself] were displaced even during the valuation. He also remarked that Greville, in the last four years of his life (i.e. after Bournon had ceased to work for him) had turned out a great number of scientifically interesting specimens to make room for others he had recently bought from Mr. Heuland.[2] The specimens removed were, according to Bournon, consigned to a garret or out-house and probably were never replaced.

To return now to the rest of the mineral collections.

While still awaiting any move to acquire the Greville Collection Konig reported (December, 1809) that he had commenced an arrangement of a geological collection " in the second table of the mineral room which at present contains agate vessles, cups, etc. . . . and that he had retrieved from different parts of the House (Montagu House) several well preserved specimens of volcanic products from Mount Vesuvius ". Earlier he had reported retrieving a chest containing similar products from Mount Etna.[3]

Early in 1810 Konig had asked for the Saloon[4] to be allotted to the Mineral Collections and now, when the Greville collection was acquired, he proposed to " add to it such specimens from the old collections as are wanting in that lately purchased by the Trustees . . . " The species were to be arranged according to a " natural order founded on external characters; not, however, without consulting the chemical composition of the substances as far as convenience would admit ". This was a modification of Werner's System. He set about a new catalogue on these lines and submitted to the Trustees sheets of the catalogue for Platina and Gold (7th December, 1810). These have not been preserved.

The Trustees seem to have been a little anxious about the proposed incorporation in the Greville collection of specimens from the earlier collections of Sloane, Cracherode,

[1] Quoted from an appendix to papers read (at the Linnean Society) at the Banks Celebration on Thursday, 17th June, 1920. *Proc. Linn. Soc.*, **1919–20**, 132nd Session, supp., pp. 20–21.

[2] Heuland (John Henry), (1778–1856), the fashionable mineral dealer, who about this time had established his business in London.

Russell (Sir Arthur), *Mineralog. Mag.*, **29** : 1952, pp. 395–405.

[3] Probably from Sir William Hamilton's collections presented between 1767 and 1779.

[4] The Saloon was a large room facing north approached through the Vestibule at the head of the main staircase on the first floor of Montagu House. The Mineral Room originally allotted was a smaller room approached through the Saloon on its west side. A plan of the rooms on the first floor is shown in " Lives of the Founders . . .", op cit., p. 325.

and Hatchett and Mr. Konig is enjoined to take " especial care before they are mixed to distinguish by marks affixed to each specimen the particular collection to which each belongs ". (9th March, 1811).

Konig got the Saloon for his minerals and began moving them in during 1812 but in the following year, after the death of Dr. Shaw, he was given charge of the whole of the Natural History Department with the rank of under-librarian (19th August, 1813). He had only one assistant, Dr. W. E. Leach,[1] to help him with all the zoological collections. Nevertheless the minerals seem to have remained his chief interest and he missed few opportunities of bringing to the notice of the Trustees any important collections that came on the market. In 1814 (19th September) he submitted the catalogue of the collection of the Marquis de Drée[2] to the Trustees and recommended its purchase later that year (11th November). It was declined, probably because the Trustees had in mind the purchase of the library and collections of Baron von Moll of Munich. Sir Joseph Banks, writing to Sir Charles Blagden,[3] 20th February, 1815, tells him " Baber and Konig are treating for the purchase of Baron Moll's library and, if they are successful, there will be no funds available for Drée's collection at the British Museum ".[4]

Konig went with H. H. Baber, Keeper of Printed Books, to arrange for the transport of the books, herbarium, and minerals of the von Moll Collection[5] from Munich. On his return (8th May, 1815) Konig reported that the collection contained many minerals of great scarcity especially from Salzburg and the Tyrol. Konig had also been authorized to spend up to £100 on the purchase of specimens and he reported having expended about half this amount with Frischholz of Munich.

In 1816 (8th March) Konig reported on two other collections; those of M. Rempasse and of the late Baron Franz Cölestin von Beroldingen of Hanover and the Palatinate.

Of the Rempasse Collection he reported that it contained " nothing new or otherwise worthy the acceptance of the Trustees with the exception of the suite of Orbicular Granite and the Porphyry both of which are remarkable ". On the other hand he made a very favourable report on the Beroldingen collection which had passed to the late Baron's nephew, Count Joseph Iglase von Beroldingen, the Würtemburg Minister in London. " Mr. Konig remarked particularly on the specimens of quicksilver ores which bore numbers referring to F. C. Beroldingen's ' Bermerkungen auf einer Reise durch die Pfalzischen und Zweybruckschen Quecksilber-Bergwerke ' (1778)." Heuland, who was asked by Konig to examine the collection, valued it at

[1] Leach (William Elford) (1780–1836), F.R.S., 1816. See *Dictionary of National Biography*, **32** : 1892, pp. 311–312; also below p. 250.

[2] Drée (Etienne Gilbert) Marquess. *Catalogue des objets rares et précieux formant les huits collections . . . qui composent le Musée minéralogique de M. le Marquis de Drée.* Paris, 1814.
The collection was purchased later by Henry Heuland and incorporated in his own collection. See Russell (Sir Arthur), op cit. *supra.*, p. 396.

[3] Blagden (Sir Charles) (1748–1820), F.R.S. Physician. Secretary of the Royal Society, 1784.

[4] Dawson (Warren R.). *The Banks Letters.* London, 1958. Nos. 320, 321, 324 and 325 (1815), p. 98. Also in earlier letter from Banks to Konig, 9th October, 1814, ibid. p. 509.

[5] The von Moll Collection was purchased for £4,768 including contingent expenses out of funds bequeathed by Major Arthur Edwards originally intended to provide a building for the Cottonian Library. The bequest was for £7,000. *Lives of the Founders,* op. cit., 1870, p. 11. The Edwards bequest also met the cost of the Hatchett mineral Collection. *Lives of the Founders . . .*, op. cit., pp. 26, 305 and 443. For another reference to this bequest, see *Acts and Votes of Parliament Relating to the British Museum, ...* London, 1814, p. 101.

£800 at least. The collection was accompanied by a two-volume catalogue in manuscript. This Mr. Konig " placed on the table for the inspection of the Trustees ". The collection was purchased in November, 1816. It contained between 12,000 and 14,000 specimens.[1]

The next notable acquisition was the collection of Vesuvian and other minerals and rocks made by Teodoro Monticelli, Professor of Chemistry at Naples. The first boxes arrived in May, 1823, and Konig does not seem to have been over enthusiastic. " Duplicates over and over again " he comments in his private diary.[2] Fletcher, however, writing in 1904 says: " Many of the best specimens of crystallized Vesuvian minerals now in the Museum came as part of the Monticelli collection ".[3] The collection was accompanied by a manuscript list in the handwriting of Professor N. Covelli.

News of another important addition to the collection was received in 1823 but the specimens were not actually moved to the Museum for six years owing to shortage of suitable space. Mr. Konig noted in his diary on 27th May, 1823, " Mr. Planta has received a note from Sir Everard Home in which he informs him the King has presented the Hartz Minerals to the Museum ". This was the collection of Hartz Mountains minerals which had been presented to the King, and which was housed at Kew Palace. Kew Palace was shut up in 1818, and there is a note in Konig's diary on 9th August, 1820, that he " wrote to the Duke of Cambridge[4] about the Hartz collection of minerals at Kew ".

Fletcher in the " History of the Collections " has described this collection as consisting of " choice specimens . . . the large groups of calcite and of pyrargyrite being especially fine ".[5] The collection was not reported as an acquisition until 1828 and the Trustees gave instructions that the specimens should be moved as soon as the new building is ready (see below, p. 249). The move from Kew was made in 1829.[6] They were placed in upright glass cases on the eastern wall of the Long Gallery.[7]

This was the last important collection of minerals to be presented or purchased for the Mineral collections during Konig's lifetime but there was a steady stream of acquisitions of selected specimens year by year and there was a great improvement in the standard of specimens purchased. The most important of these are described in the " History of the Collections " (1904).

[1] In the *Lives of the Founders* (op. cit., p. 26), the collection is listed under notable acquisitions as: " The Beroldingen Fossils " and, taking this to mean " Figured Fossils " the Author quite wrongly describes it as " the only considerable acquisition made in this department, between Brander's gift of fossils gathered from the London Clay) in 1766, and the purchase of the Hawkins' Collection in 1835 ".

[2] Part of a private diary of Konig's has been preserved. It covers only the period from 9th July, 1816 to 1st May, 1825 with a gap from 16th December, 1817 to 28th June, 1819. The entries are very brief. A manuscript copy was made in 1942 by Dr. Herbert Smith and it is from this copy that the occasional extracts from the diary have been taken. The notes are in English but the more private entries are in German script and are sometimes almost undecipherable. (G.F.H.S., 1942).

[3] *History of the Collections . . .*, **1** : 1904, p. 362.

[4] Adolphus Frederick, 7th son of George III, 1774–1850. He, like his brother the Duke of Sussex, had studied at Göttingen.

[5] *History of the Collections . . .* **1** : 1904, p. 363.

[6] A note in *Lives of the Founders* (op. cit., p. 29) records the presentation in 1829 of the " Hartz Mountains Minerals. Collected at various periods and by several mineralogists. This fine cabinet of minerals was for a considerable period preserved at Richmond ". Here " Richmond " is an error for " Kew ".

[7] *Synopsis of the Contents of the British Museum*, Edit. 26, 1832, p. 157.

There was a very considerable acquisition of cut and polished stones in 1825 and 1826 when a collection of about 300 stones was purchased from Mr. H. C. G. Struve, Russian Minister-Resident at Hamburg.

Up to this time faceted gemstones were very poorly represented in the Collection of Minerals. Among the specimens recognized as belonging to the Sloane Collection one gem of outstanding interest is a large sapphire " set with (small) rubies, emeralds and gold in a hemisphere of rock-crystal and mounted in silver ".[1] Most of the other precious stones in the collection in the early days were probably uncut natural crystals. Konig reported in 1811 that he was working on a catalogue of these but the only part of the catalogue preserved refers to " Diamonds ". It is written on alternate pages of a large 4to book. Ninety-seven diamonds are listed and the entries end at page 61. The water-mark on the paper used is 1816.

In January, 1825, in recommending the purchase of six diamonds (two crystals and four coloured stones, three of them cut brilliants) Konig " begs to state to the Trustees that the coloured precious stones that formed a fine suite in the Coll. of the late Mr. Greville were disposed of by the executors previous to its being purchased by Parliament so that scarcely any specimens illustrative of colour are to be seen in the otherwise very instructive and valuable assemblage of crystallized diamonds that constitute a part of the great collection of minerals in the museum ".

In May, 1825, Konig was in correspondence with Mr. Struve about the sale of his collection and on 9th December he lays before the Trustees a prospectus and drawings of some of the minerals and " begs to recommend to the Trustees to supply a deficiency in their own collection by purchasing . . . the cut and polished precious stones the price of which is 1,400 dollars or about £238. It consists of about 300 articles among which are two beautiful star stones or asteria sapphires, one of 88, the other of 30½ carats . . . ". The collection also included " a series of models of the various crystal forms of precious stones cut in glass imitating their respective colours, and a suite of pieces of amber enclosing various objects ". The collection was purchased for £245 and Konig notes in his diary that the cut stones from Mr. Struve arrived, 15th February, 1826.[2]

The only other considerable purchase of gemstones in Konig's time was in December, 1849, when 62 diamonds were purchased through Professor James Tennant from the Collection of Henry Philip Hope, once the owner of the " Hope Blue ".[3]

A very fine collection of minerals belonging to the Dowager Countess of Aylesford was purchased after her death in 1832 by Mr. Heuland and many fine specimens

[1] Konig reporting to the Trustees in February, 1823, " begs permission to cause Sir Hans Sloane's sapphire which has become detached from its socket to be reset " and presumably this was done. There was nothing to indicate to later generations that this beautiful jewel had belonged to the Sloane collection and it was Miss J. M. Sweet who re-identified it in 1935 from the entry in Sloane's catalogue.
Sweet (J. M.) op. cit., *Nat. Hist. Mag.*, **5** : 1936, p. 113 and fig. 14.

[2] The collection (but not the gemstones) is described in: Marx (Carl Michael), " Ueber die Struvesche Mineralien-Sammlung ", Kastner, Archiv. für die gesammte Naturlehre, 1827, vol. 12, pp. 220–226; and ibid., 1830, vol. 19, i.e. Kastner, Archiv. für Chemie und Meteorologie, 1830, vol. 1, pp. 370–379. Abstract in *Jb. Miner. Geogn. Geol. Petrefakt.*, **1832**, p. 426. See also a list of the more important stones in the *History of the Collections . . .*, 1904, p. 362.

[3] Hertz (B.). *A Catalogue of the Collection of Pearls and Precious Stones formed by Henry Philip Hope Esq., systematically arranged and described.* London, 1839.

from this Collection were purchased by the Trustees in 1834. The sum expended amounted to £379 3*s.* 0*d.* Konig had expected to spend a much larger sum.[1]

A further selection of very fine specimens from this collection, bought from Mr. Heuland, was presented to the Museum in 1836 by Mr. R. Simmons, F.R.S. Though there were only 12 specimens they were valued at £300. They included native gold from Mexico, priced at £150, and two beryl crystals from Nerchinsk, Transbaikalia, of which one purchased for only £45 was thought to be worth £100.

It is surprising that there is no mention in Konig's diary of the collection of the Abbé Haüy who died in 1822. This collection was bought by the Duke of Buckingham. When the collection came up for sale again in 1848 after the Duke's death it was purchased by a Frenchman and it returned to the Natural History Museum in Paris where Haüy was for so long Professor.

Some collections of rock-specimens made by explorers in what were then remote and unknown parts of the world began to reach the Museum soon after Konig's appointment, but most collections of this kind were presented to the Geological Society of London which had been founded in the same year, and which was already forming a considerable collection.

The earliest of such collections to reach the British Museum was one made by Robert Brown, naturalist on H.M.S. *Investigator* during Captain Matthew Flinder's Expedition to " Terra Australis " in 1801–03. It was presented in 1811 by the Admiralty.

In the same year Sir Joseph Banks presented specimens collected in Venezuela by Baron F. H. A. von Humboldt in 1799 and 1800; in 1817 the Admiralty presented through Sir Joseph Banks a small collection of gneisses, schists, etc. made by Prof. Christen Smith and Mr. Tudor at the mouth of the Congo River in 1816. A narrative of this expedition was published in 1818 to which Konig contributed a brief account of the rocks. This was Konig's first geological publication.[2]

From time to time the Admiralty presented specimens collected on the early Arctic expeditions and many others including the voyages of James Clark Ross to the Antarctic Regions between 1839 and 1843. Some notes on these and on other collections of rocks presented in the early years of the Department will be found in Appendix I (p. 257).

The work of arranging the minerals in the Saloon went steadily on and the arrangement " except Native Salts " was finished early in 1815. Konig proposed using the old Mineral Room for Geological specimens and in July of that year, after his return from Munich, he reports that he is arranging a Technical mineralogy collection of mineral substances in a wrought state in one case. In November, 1816, he proposes " to take the weight off the floor of the Saloon by looking out all the British specimens . . . " and he asks for the " first room ", (later referred to as Room X) to be fitted up for the reception of the British minerals. The Trustees agreed and ordered " that

[1] The amount spent with Mr. Heuland between 1817 and 1835 according to invoices preserved in the Department was £1,682 16*s.* 6*d.*

[2] Also in a German translation:
Konig (C.). " Uber die Mineralien welche auf Tuckey's unglücklichen Ausrüstung am Congo gesammelt wurden ". *Isis*, Jena, **1819**, col. 234–236.
James Kingston Tuckey, commander, R.N. died after completing a land journey to find out what lay beyond the cataracts.

in future the British minerals be kept distinct " and Mr. Konig is ordered to give an estimate for the tables for arranging them. A model of the Table (case) was approved at the Trustees' meeting on 14th December. In the following year he reports that the British minerals are temporarily arranged in the basement story and in May, 1818, the British Mineralogy room is to be open " immediately after the holidays ". Konig had at last carried through his plan, first proposed in 1810 and repeated in 1815, of a three-fold arrangement of the mineral collections: " oryctognostic ", British and Technical.

The " Synopsis " for 1818[1] has a plan of the cases in the Saloon, and an alphabetical list of the minerals with references to the cases in the plan. Room X contains the " British Oryctognostic Collection ". This contains " the rudiments of a collection of British simple mineral substances " in which a series of table-cases show the minerals of the first seven counties of England in alphabetical order from Bedfordshire to Devonshire.

Konig at this period was giving some attention to the " Secondary Fossils ", which were exhibited in Room IX, adjoining the Mineral Room. It was also about this time that the Trustees had arranged to purchase the geological collection of William Smith, later to be known as the " Father of English Geology ", and Smith began delivering his collection to the Museum in June, 1816.[2, 3] Entries in Konig's diary referring to this collection continue to the end of 1817 and it does not appear from these that he did much to facilitate the exhibition of the collection. In later years he seems to have come to appreciate William Smith's work rather better, when he was turning his attention still more to the fossils.[4] In December, 1819, he reports, perhaps in answer to an enquiry from the Trustees, that " the collection of Minerals and Fossils is the only part of the collection (of Natural History) susceptible of being completed and rendered perfectly useful to the public ".

In the following year, 1820, on the 19th June, Sir Joseph Banks died. He had exercised great influence as a Trustee and had taken great interest in the Natural History collections. Konig must have sadly missed his advice. One of the last references to Sir Joseph in his diary is for 13th December, 1817, when Konig notes that he made " Long report on Smith's Collections (Sir Joseph's as he drafted it) ".

There were further changes impending. Montagu House was rapidly becoming too small to house the growing library and other collections. As early as 1815 the Trustees had appointed Robert Smirke as architect to draw up plans for a new wing to the old house. Konig has a note in his diary that the Trustees had received a report from Mr. Smirke in April, 1820, on the state of the Museum and on the Elgin Gallery. He notes, " This is probably the first step of a general change ", and so indeed it proved to be. Discussions on proposals for the new buildings began in 1821 and money for the purpose was voted by Parliament and work started in 1823.[5]

The rooms for the King's Library were the first to be built, the new wing running

[1] *Synopsis of the Contents of the British Museum*, 14th edition, 1818, p. 62.
[2] Cox (L. R.). New light on William Smith and his Work. *Proc. Yorks. Geol. Soc.*, **25** : 1942, pp. 1–99.
[3] Eyles (Joan M.). William Smith: the sale of his geological collection to the British Museum. *Ann. Sci.*, **23** : 1967, pp. 177–212.
[4] *Report from the Select Committee on the . . . British Museum*, 1835, p. 205. Questions No. 2886, 2887. See footnote p. 249.
[5] British Museum. *The Buildings of the British Museum*, London, 1914, pp. 3–4.

out northwards into the gardens from the N.E. corner of the old house. The galleries above the King's Library were intended for pictures but they were allotted temporarily to the Natural History Departments. This part of the new building was nearly finished in October, 1826 and on 11th May, 1827 Konig submitted plans for the use of the space allotted to him and proposed that work on the " distribution of the objects of the three great branches of Natural History might be commenced before the new building was quite completed in the summer vacation when the Museum will be closed during the months of August and September and about which time the whole of the present edition of the Synopsis will be exhausted ".[1] The minerals were to be arranged in the Long Gallery. Plans for their arrangement were presented on 7th March, 1828, in a report of which the draft occupied six pages of Konig's note-book. The " System adopted, with occasional slight deviation, is that of Professor Berzelius, founded upon the electro-chemical theory and the doctrine of definite proportions ".[2]

Instructions for transferring the collections to the new building were issued in April, 1829, and it was proposed to open the new gallery to the public after the Easter recess in 1831.

Konig worked on the rearrangement steadily in 1830 and by November he was able to report that only nine out of the 59 cases in the Long Gallery remained to be arranged.[3] In the course of this work he had redistributed in the general collection the British minerals which had been set apart in 1818 (see above, p. 247–8). Labelling the minerals went on during 1833 and 1834, Konig writing all the " tickets " himself.

During his evidence before the Select Committee on the British Museum in 1835 Konig was questioned about this and was asked if he thought it right that he should do such menial work. To this he replied: " I do not consider writing as menial work, and I do it with great pleasure; I have no more objection to write the tickets than I would if the collection were my own ". He had no assistance in arranging the minerals and " he did the whole himself ". There were two men who filled the trays with cotton [wool]; they filled upwards of 12,000 trays.[4]

The minerals did not remain many years in the Long Room of the new building. In 1833 the north side of Smirke's quadrangle was taken in hand and in 1838 the move of the Mineral Collection to this northern wing began.

Just before the move to the northern wing was made another very important change took place. The Natural History departments, hitherto all under Konig's care, were divided in 1837 and the Departments of Mineralogy, Botany and Zoology were set up with a " Keeper " in charge of each. Charles Konig became the first Keeper of Minerals (including Fossils).

The rooms " appropriated to the collections of Mineralogy and Secondary Fossils "

[1] The books of the King's Library were transferred from Kensington Palace in July, 1828.

[2] A report on the Department of Natural History made to the Trustees by Sir Henry Ellis, Mr. Konig and Mr. Children was published as Appendix No. 27 to the *Report from the Select Committee on the Condition, Management, and Affairs of the British Museum*, 1835, pp. 436–437.

[3] *Synopsis of the Contents of the British Museum*, 1832, 26th ed., p. 124; op. cit., pp. 124–160. This contained an alphabetical list of the minerals exhibited in the Long Gallery as far as they were then arranged with references to the table-cases (pp. 158–160). Case 1 contained meteorites, native iron, Cu, Bi, As; Case 2 gold and other native metals; and so on to case 49, manganese carbonates.

[4] *Report from the Select Committee*, op. cit., 1835, p. 189.

were above the library on the north side of the North wing. There were six rooms and there were two small studies at the west end of which probably one was assigned to the Department of Minerals.[1, 2]

In the same year in which the three new Departments were set up the General Register of Acquisitions was started and thereafter every mineral specimen and every collection of rocks or of fossils and every important individual fossil was recorded. This marked a very great advance in the accurate recording of specimens with particulars of the locality for each one and whether presented, purchased or acquired by exchange, and from whom. During the ensuing 100 years or so specimens acquired before 1837 were entered in special volumes of the Register with all such particulars as could be ascertained.

The years after the division of the Departments and the move to the northern wing were somewhat uneventful after the many changes that had taken place in the first 30 years of Konig's service in the Museum. The rearrangement in the new rooms of the minerals and fossils and their labelling occupied ten years. During this time there was a steady stream of new acquisitions including many of the finest specimens in the Collection. The General Register records additions of something over 200 specimens a year. The actual numbers with notes on the more important acquisitions are recorded in the History of the Collections (op. cit. *supra*). Among them it is interesting to note the great group of gypsum crystals from Reinhardsbrunn, Gotha, Germany, presented by the Prince Consort in 1847 and now exhibited outside the entrance to the Mineral Gallery; and the lovely specimens of pale pink fluor—" the Couttet rose-fluors "—presented by John Ruskin in 1850, the year before Konig's death.

In trying to make a fair assessment of Konig's work at the Museum one should bear in mind that from 1813 to 1837 he had charge, not only of the Mineral Collection but also of the whole Natural History Department. He had but one Assistant librarian, Dr. William Elford Leach, who was appointed in 1813. Leach had long periods of leave for collecting and travel in England in 1816 and again in 1819 when he went to the Orkney Islands. He became a very sick man in 1820 and so remained, eventually resigning in 1822. Leach was succeeded by John George Children, who had been appointed an assistant librarian in the Department of Antiquities in 1816. After Leach's retirement became inevitable there was some discussion between Sir Humphry Davy, Konig, and others on Mr. Children's transfer. One gathers from Konig's diary that he was not very enthusiastic about this proposal but Children was transferred in 1823.

Children in his evidence before the Select Committee in 1835 said " the transfer was effected . . . at the suggestion of Sir Humphry Davy and almost without my being consulted on the subject and it has proved very much to my disadvantage. It was not made in consequence of any wish of my own ".[3] However, we have it from Konig's diary notes that Children, very soon after his first appointment, had told

[1] *Synopsis of the Contents of the British Museum*, 1840, 40th ed., pp. 93–123, index pp. 127–131. Cases are numbered 1 to 62.

[2] Edwards (E.). *Lives of the Founders . . .*, 1870. Plan facing p. 754, attached to a report of the sub-committee of the Trustees respecting the removal of the Natural History Collections.

[3] *Report from the Select Committee*, op. cit., 1835, p. 271.

Mr. Planta that he would rather assist in Mr. Konig's department. Children was very well qualified for a post in the Natural History Department. When quite a young man he had travelled extensively and had studied electricity and mineralogy. He had worked with his father, the Tonbridge banker, George Children, on the construction of large galvanic batteries which they made in a laboratory in the garden of his home, Ferox Hall, Tonbridge, where they were visited on occasions by Sir Humphry Davy. The results of their experiments were published in 1809 and 1815. In 1822 J. G. Children had published " The use of the blowpipe . . . in the examination of Minerals " by J. J. Berzelius (translated from the French of M. Fresnel) with a sketch of Berzelius' System of Mineralogy . . . This was the year previous to his transfer to the Natural History Departments. After his transfer he published in 1824 and 1825 papers on the chemistry of several minerals and " A summary view of the atomic theory according to the hypothesis adopted by Berzelius ".[1] The mineral " childrenite " was named after him by H. J. Brooke in 1823.[2]

Children was elected a Fellow of the Royal Society at the early age of 30, and he was one of the Secretaries from 1826–27 and again from 1830–37. On the division of the Natural History Departments in 1837 he became the first Keeper of Zoology. Since his transfer from Antiquities he had worked hard on the Zoological Collections. Konig had come to think very highly of him and said so in evidence before the Select Committee.[3] He had become joint editor of the newly established Zoological Journal (1825) and he was one of the founders of the Entomological Society, and he was a member of the Geological Society and an early member of its Council. He retired in 1840 at the age of 63, to Halstead Place, Kent, where he occupied his leisure in the study of astronomy. He died 1st January, 1852 aged 75 years.

We cannot claim that Konig was a great mineralogist but undoubtedly he did devote himself wholeheartedly to his Department and in particular to the care and arrangement of the Collection of Minerals. One of his contemporaries writing a short obituary notice of Konig refers to the " magnificent display . . . which now adorns the galleries ".[4] In earlier years H. J. Brooke wrote that he found at the British Museum " the utmost facility afforded for research by the habitual urbanity and friendly attention of Mr. Konig ",[5] and in another place he refers to " that rich collection, upon which his attention is so constantly and so assiduously bestowed ".

It does not seem that Konig saw much of many of the British mineralogists other than Hatchett and Wollaston at the Museum and, on occasional visits, H. J. Brooke. He never joined the Geological Society where he might have met Aikin, Babington, and Richard and William Phillips, all founder members of the Society. Perhaps after his election to the Royal Society, 1st January, 1810, and after he became its

[1] Thomson, *Ann. Phil.*, **9** : 1825, pp. 185–193, and 336–358.

[2] A specimen of childrenite with others from Children's collection was presented by his daughter, Mrs. Anna Atkins, in 1871.

[3] *Report from the Select Committee*, 1835, op. cit., p. 203.

When asked: " Are any of the more eminent naturalists of the day officially connected with the British Museum in any capacity ", Konig replied: " We have Mr. Brown, who is the greatest botanist in the world ". To the next question: " Is there any other? ", he replied: " Mr. Children's merits are very great. Mr. Children has done much for Science. He is also well versed in several branches of Natural History ", and " I think he is a good zoologist ".

[4] Reeve (Lovell), in *Literary Gazette and Journal of Belles Lettres*, London, 8th September, 1851.

[5] Brooke (H. J.). *A familiar introduction to crystallography*, London, 1823, p. vi.

Foreign Secretary, (1830) he may have seen more of other mineralogists but, certainly in his earlier years he remained very much aloof. We have already seen that he would have little to say to Bournon (see above p. 242).

His apparatus at the Museum was extremely limited. He had a Wollaston " reflective goniometer " in 1810 and he notes that a new vernier was fitted in 1832. Previous to this, in 1809, he asked for authority to purchase, at a total cost of eight guineas, three pieces of apparatus figured and described in Haüy's Traité de Minéralogie,[1] namely: an " areometer ", a kind of hydrometer devised by William Nicholson (1785) for measuring the specific gravity of solid bodies;[2] an electrometer, and a Carangeot contact goniometer. In 1811 he asks for " a good pair of scales with decimal weights " and he requests that his instruments may be kept in the " old medal room " and for a good place for his scales. One gathers that anything he could call a laboratory was non-existent. In fact Konig said as much in his evidence before the Select Committee in 1835. Asked whether he had sufficient accommodation for the efficient discharge of his duties, he replied: " I, individually, at present have. There is one room which is very much deteriorated since a small skylight has been substituted for a window: but still I have a room to work in ". When asked a further question about the light he said: " I cannot (now) measure a crystal with a reflective goniometer, neither can I do so in the gallery ". (On account of the risk of fire no artificial light was allowed). Referring again to the absence of any provision for a laboratory he said: " Some years ago I applied to the Trustees for a collection of tests . . . which I have fitted up in my room ".[3] Certainly he does not seem to have had very efficient equipment.

When Konig began work at the Museum in 1807 the only modern books on mineralogy in English were those by Kirwan and Jameson, both men of the Werner school. For other authorities he would have to turn to the French works of Romé de l'Isle, Haüy, and Brochant de Villiers (another of Werner's pupils), and, in his native tongue, to Werner and the mineralogical part of Gmelin's edition of the Systema Naturae, and some other, rather undistinguished, works.

By 1820, when he was making preparations for a new descriptive catalogue of the collection, he had about a dozen " mineralogies " available including the second edition of William Phillips' " Elementary Introduction to the Knowledge of Mineralogy " (1819) which gave a fair account of crystal form and of Haüy's theory of the structure of crystals. From these " mineralogies " Konig commenced to extract all that was known about each species, but this catalogue was never completed and after the move into the new buildings he added little to it.

Evidence before the Royal Commission in 1849 drew attention to another catalogue, this time of books, which Konig had compiled but which was not published and which seems to have been lost. Sir Roderick Murchison asked him had he not completed a " classed catalogue of the books relating to his Department entitled ' Bibliotheca Mineralogica-Geologica '". To this Konig replied: " I began such a catalogue in about 1820; I occasionally worked on it to 1836 when it was pretty complete; I then

[1] Haüy (R. J.). *Traité de Minéralogie* . . . Paris, 1801, pl. vii, pp. 212, 239 and 248.
[2] Mem. Lit. Phil. Soc., Manchester (ser. 1), **2** : 1789, pp. 386–396.
[3] *Report from the Select Committee* . . ., 1835, p. 201.

offered it to the Trustees inquiring if they had any objection to publish the work, as I could not do it myself ". He had worked on this in his own time. He had written about it to the Archbishop, one of the Principal Trustees, on 5th November, 1836 and estimated that it would form two octavo volumes of moderate size. The Trustees replied 18 months later that " they approved of the plan which they would not lose sight of, but then it was not the time to consider the subject . . . ". Some of the " fasciculi " were exhibited when he gave the above evidence.[1]

Another work started by Konig in quite early days was intended to illustrate fossil organic remains. It was entitled " Icones Fossilium sectiles (with descriptive text by Konig), 4to, London, 1830 ". Only one part appeared. His other palaeontological publication was " On a fossil human skeleton from Gaudeloupe " published in the Philosophical Transactions in 1814.

We do not learn very much about Konig's private life from his diary entries. These are chiefly jottings referring to departmental activities and correspondence. There are, however, frequent references to his unmarried sister in Germany, to his journeys on the continent to see her, and brief mentions of his annual vacations which have some interest.

Konig was a bachelor and for most of his long service at the Museum he resided in one of the official apartments at Montagu House. He had " a large room for a drawing room and a small room adjoining, a dining room under the drawing room, a bedroom, two garrets, and a kitchen ".[2]

His salary at the time of the Select Committee's enquiry in 1835 was: a fixed salary for two days attendance of £200, and £225 for three additional days extra duty making a total of £425. He also received a sum of about £5 under the will of Dr. Birch, and an allowance for stationery of about £5.

His household expenses were probably not excessive. He notes in August, 1819: " paid Church his coal bill, £17 18*s*. 6*d*", and similar amounts are paid to Church in 1820 and 1821. An item referred to as his " house bill " is £11 17*s*. 0*d*.; 26th July, 1822, and £8 10*s*. 6*d*. on 8th May, 1823. Newspapers for six months to end of July, 1823, cost £1 19*s*. 0*d*. The wages of his servant, Ann, in 1822 are " now at the rate of £19 19*s*. 0*d*. p.a.", but he gave her a Christmas box of two guineas on 30th November that year. He seems to have maintained a modest wine cellar and there is a note sometime during each year of wines and spirits received. In 1823 there is a note of the bill: " paid wine bill £24 17*s*. 0*d*." ; and in 1825, 31st March: " Bill of £19 presented late in the evening from Smith, Payne & Smith, Mansion House Place, for which 5/– was charged which I refused to pay, the bill not having been presented before ".

Occasionally he notes when friends dined or breakfasted with him, and there are notes of some of the occasions when he dined out. There are frequent references to dinners at Sir Joseph Banks' at Spring Grove and on one occasion, 13th September, 1816, the names of other guests are mentioned including those of Gay Lussac, Arago and three others. After the death of Sir Joseph, Lady Banks seems to have invited Konig to dinner regularly on New Year's Day, and probably others from the Museum

[1] *Report of the Commissioners appointed to inquire into the Constitution and Government of the British Museum* . . . London, 1850. (Konig's second examination, 15th February, 1849), p. 336.
[2] *Report from the Select Committee* . . . , 1835, p. 186.

too. Konig dined there in 1822 and 1823 but " was too unwell to accept " in the following year.

Konig seems to have kept himself quite well dressed in the fashion of the times. There are brief diary entries about new clothes and of bills paid. Evidently he preferred his coats to be blue, trousers in shades of grey, and waistcoats yellow drab, yellow buff, and yellowish white, but striped for summer wear, and, on one occasion " black stippled zigzag ". Between September, 1822 and June, 1823 he has two blue coats, one pair blackish grey trousers, one pair black breeches, one pair black pantaloons, and two yellow waistcoats. In August that year he pays Sommers (? Summers and Prosser) £40, having paid a similar amount on account at the end of July, 1822, and £33 17*s*. 6*d*. on 7th August, 1821 " for last year's bill ".

On the death of King George III, 29th January, 1820, he notes " black coat sent ". The Under-librarians went at once into mourning. One wonders if the black coat was an issue.

At the coronation of George IV, 19th July, 1821, Konig was on duty as Hanover King at Arms, and he notes in his diary, " a day of great fatigue to me ".[1] Subsequent entries as late as 1825 show that there was some discussion about the payment of Meyer's bill for the coronation dress.[2]

The diaries contain a few entries of subscriptions or donations:

1816, 29th November. " Gave to the Churchwardens of Bloomsbury for the poor, £2 2*s*.

1821, 13th December. " Paid £5 5*s*. to Sabine for Sir J. Banks statue."

1824, 2nd April. " Paid Mr. Green £1 1*s*. for the Society for Foreigners in distress."

1824, 16th June. " Committee for promoting humanity to animals, at Slaughter's Coffee House. Subscribed £1 1*s*."

Konig was a member of the Athenaeum from 1825[3] and of two Literary Clubs and Lovell Reeve tells us (loc. cit., p. 251) that " His extensive acquaintance with the German dialects led to his acquiring a considerable taste for philology, in the cultivation of which much of his leisure time was latterly passed, and in which department of literature he formed a valuable library ".

The diary contains brief notes of summer vacations. In 1816 Konig goes on 20th August to the Isle of Wight with Dr. Sims, the botanist, and Miss Sims. Leaving there he returns to London but sets off again on the following day via Norwich

[1] Joanna Richardson in *George IV: A Portrait*. London, 1966, p. 221, writing of this coronation notes: " Only once again would Blanc Coursier King of Arms bear the Crown of Hanover to Westminster ".

[2] 1824, September. On his return from a visit to his sister in Germany he finds " bill of Meyer's for coronation dress sent to me under the name of Charles King. I shall certainly not pay him as I was expressly told by the Count Munster and Sir G. Nagle that I have nothing to pay for the costume. There is a sword in the bill which I never had. The Kings at Arms wore no swords ".

1825, 18th May. " Another letter from Meyer resp. the coronation dress. Mr. Hodgson advised me not to notice it."

1825, 21st June. " Called on Mr. Egan, the solicitor, resp. Meyer's demand ".

1825, 4th October. " Sent coronation dress to Moller."

As far as the diary entries go that is the end of the matter. Who paid Meyer?

[3] He was invited to become a member without ballot by Mr. Heber, 1st November, 1824, and he notes, " accepted it without knowing that the subscr. begins with New Year ". However, on 10th January, 1825, he " paid £21 to Drummond's for Athenaeum ".

to Yarmouth where he spends another week and returns to town by Bury St. Edmunds and Cambridge. A whole day was spent at Cambridge but there is no mention of any visits paid.

Of more interest is a months vacation in 1819 spent mainly at Matlock and Buxton in Derbyshire. During this tour he visited from Matlock; Mawe's Fluor Cavern, Rutland Cavern, Mawe's Museum, High Tor, Cromford Moor mine, and Brassington. He notes that he " called on Thomas Pearson the guide who got the muriate of lead [?Phosgenite] for Mr. Greville." Also he called on Mr. Arkwright (Willersley Castle) with a letter from Sir Joseph Banks and was shown the grounds by Mr. Arkwright himself.

He " went ' post ' by Bakewell to Buxton and put up at the Gt. Hotel ". While there he rode out to Castleton, saw the Peak Hole, Speedwell Mine and Pool's Hole, and from Elias Hall he ordered two models of the topography of Derbyshire and Cumberland (probably for his planned exhibit of British minerals arranged by counties).

He returned to London by Macclesfield, Stone, and Wolverhampton—where he stayed over the weekend with a friend, Mr. Thursby at Tettenhall—and thence on by coach to Oxford where he stayed a night and finally to London by the afternoon coach. At a rough estimate he had covered about 400 miles mostly by mail coach and post except for the journey from Derby to Matlock which he covered more pleasantly " with Dr. Henderson in his gig ". They visited Kedleston on the way and admired the noble mansion and its beautiful entrance hall but, especially two beautiful Rembrandts; " Joseph explaining the Dream " and the " Portrait of an old man ".

Very frequent in the diary are notes of letters to Konig from his sister and his many letters to her. She was evidently unmarried and rather unsettled, moving at rather frequent intervals, and sometimes complaining of ill health. Konig makes notes of sums of money sent to her about twice a year and varying between £15 and £20 in English money and he goes to considerable trouble to arrange for these payments. Twice he made journeys for the express purpose of visiting his sister. The first time, in 1821, he set out at very short notice and reached Aix-la-Chapelle where he had asked for a letter to be sent to him (presumably to tell him her present address) but finding none he returns, receives her letter at Calais, but continues his homeward journey. This seems a little odd.

On the second attempt, in 1824, he is quite successful and stays several days at the end of his long journey at Hemsbach-bei-Weinheim where his sister then lived. On his return journey he stayed in Heidelberg, called on Professor Gmelin, who had visited him at the Museum in 1816, and had supper at Professor Leonhard's. He returned by Rastadt, Achern, and Kehl, to Strasbourg where he visited the museum and bought some minerals. After three days there he left for Paris in the diligence, 24 hours, and thence by Calais and Dover to London. The whole journey had occupied a month, 3rd August to 2nd September.

It is a pity no more diaries of Konig's have survived. Perhaps he gave up keeping them. All we know of his later years is the little we can glean from his reports to the Trustees and his draft notes for these.

When he was giving evidence before the Royal Commission in 1848 and 1849[1] he was an old man and this appears to some extent in his answers to questions. The loss of rank that he felt he had suffered when the department of Natural History was divided in 1837 still rankled. He considered he was degraded " not in the title but in the rank formerly held by the Head of the Department of Natural History, the most ancient, and for which the British Museum was mainly founded "; and it is rather sad to find him saying, at the end, " not a word of approbation has been bestowed on me though by far the greater part of my life has been spent in the service of the Museum ".

In 1850 he was still actively engaged with the mineral Collection and he proposed to change the arrangement of the minerals on the general lines of the new chemical system of Berzelius (1847). With this end in view he had " placed chemical labels " with each mineral species during 1848 and 1849. Unfortunately, before this re-arrangement could be even commenced he died suddenly at his official residence as the result of a stroke on 6th September, 1851. He was 77.

It seems that his sister had died before him and that he had no other close relations for by his will, made on 4th December, 1850, he left almost everything to charities, after making small bequests to his executors and to his two servants. There were three bequests to his native city of Brunswick; an orphanage, a poor-house, and a hospital; and bequests of £200 each to: the Literary Fund, the Bloomsbury Dispensary, the Refuge for the Destitute, the Society for the relief of Foreigners in Distress, the German hospital at Darlston, and the Society for the Protection of Life from Fire. His executors were his " dear friends " Robert Brown Esq., of the British Museum and Dean Street, Soho, and Alexander Henderson, M.D., of Curzon Street. The will was proved by Robert Brown on 13th November, 1851.

Konig had spent the last fifty years of his life in England and for forty-four of those he had devoted himself to the service of the Museum and work on the Mineral Collection had been, for most of that time, his chief care. His death virtually marked the end of the first hundred years of the history of this Collection. His successor, George R. Waterhouse, was a palaeontologist and there was no assistant qualified to take charge of the Minerals. For two years James Tennant, Professor at King's College and also a mineral dealer, was employed " to arrange and catalogue the minerals at £2 a day ". It was not until 1857, when the old department was replaced by the two departments of Geology and Mineralogy that Nevil Story-Maskelyne became the first Keeper of Mineralogy[2] and a new chapter in the history of the

[1] *Report of the Commissioners appointed to inquire into the Constitution and Government of the British Museum* . . . , London, 1850. p. 163.

[2] The Keepership seems to have been first offered to Mr. W. G. Lettsom[3] but the Government " through diplomatic difficulties in Mexico at that date " induced him to remain at Monte Video, where he was British Consul. Samuel Highley says that the post was then offered to him through Professor Thomas Bell but for various reasons he declined it. See *Record of the Life-work from* 1844 *to* 1885 *of Samuel Highley, F.G.S., &c., Publisher, Scientific Educationalist, Author, Journalist, Editor, Lecturer on Science, Founder Candidate for nomination for Charterhouse.* (1886).

[3] William Garrow Lettsom (1805–87) was joint author with R. P. Greg of the *Manual of the Mineralogy of Great Britain and Ireland* (London, 1858). He had joined the diplomatic service in 1831 and was Secretary to the British Legation in Mexico and later became Chargé d'Affaires there. The British Government suspended diplomatic relations for a time, owing to Mr. Lettsom's representations, and he was the object of an attempted assassination. In 1859 he was appointed Consul General and Chargé d'Affaires to the Republic of Uruguay and remained at Monte Video till 1869 when he retired from the diplomatic service. He was elected a Fellow of the Royal Astronomical Society, 13th April, 1839. *Mon. Not. R. astr. Soc.*, **48** : 1888, pp. 165–166.

Mineral Collection began. This chapter, written by Sir Lazarus Fletcher, Maskelyne's successor, is to be found in the History of the Collections of the Natural History Departments of the British Museum (1902) wherein is also to be found the history of the first hundred years which I have here endeavoured to recount at much greater length. Throughout this work I have been greatly helped by constant reference to the notes compiled by Fletcher and his colleagues in 1902, and to Dr. Herbert Smith's copy of Konig's diary notes made in 1942.

APPENDIX

Notes on some early collections of rock-specimens

Mention was made in the text (p. 247) of the collections of rocks made by some of the early explorers and presented to the British Museum. Among these were some presented by the Admiralty. The following are brief notes on further early rock collections presented by the Admiralty and others and a short reference to Konig's arrangements for the storage of the rock collections.

The Admiralty also presented to the Museum specimens collected on some of the early Arctic and Antarctic expeditions.

A report in January, 1819, refers to " specimens of various substances brought by Sir John Ross from the vicinity of the North Pole ". No specimens representing this presentation by the Admiralty have been identified except the knives of meteoric iron set in bone handles, made from the Cape York meteorite, and given to Captain Ross in 1818 by the esquimaux of Prince Regent's Bay.[1, 2]

The Admiralty also presented to the Museum specimens collected by Commander William Edward Parry on his first Arctic Expedition, 1819–20, and Konig described the rocks in an appendix to Parry's Journal of the Voyage in 1824. Konig had submitted a short account of this collection to the Trustees on 11th April, 1823, and shortly afterwards his diary (2nd May) records " receipt of a letter from Sir G. Clerk who desires to have specimens of Parry's voyage sent to the Geol. Soc." After the next Trustees' meeting he notes: " rocks of Parry's ordered to be sent to the Geol. Soc.". It seems, however, that these were duplicates as a collection of 26 specimens remained in the Museum[3] while another set of 33 specimens was in the Geological Society's collection " Presented by Sir George Clerk[4] in 1823 ".

In December, 1820, Konig reported rock-specimens from Sierra Leone and the Los Islands collected by Dr. H. Nichol and presented by Henry, Earl Bathurst, Secretary for the Colonies, with the promise that he would send collections from other colonies. Konig took the opportunity to draw the attention of the Trustees to the fact that there were in his Department already a considerable number of rock-

[1] Prior (G. T.). *Catalogue of Meteorites* . . . . Second edition by Max H. Hey, London, 1953, p. 66.

[2] A collection of rocks made by Sir John Ross in 1818 was presented to the Geological Society in 1819 by Dr. John MacCulloch who, in that year published " Geological Memoranda " in Ross's narrative of his voyage. This collection was transferred to the Museum with the rest of the foreign collections of the Geological Society's museum in 1911. Smith (W. Campbell), *Catalogue of the Rock Collections in the Mineral Department* . . . , *Part II, America*, London, 1932, p. 53.

[3] Smith (W. Campbell). *Catalogue of the Rock Collection* . . . , *Part II, America*, London, 1932, p. 59. This gives full references to Konig's account of this collection published as an appendix to Parry's Journal, 1824, and also in two independent publications in 1823.

[4] Sir George Clerk (1787–1867). A Lord of Admiralty, 1819–27.

specimens illustrative of the geology of Great Britain, Jersey, Guernsey, the Hartz Mountains, etc. . . ., and he asked for a room in the basement to be fitted up with chests of drawers which, he suggested, could be made of common deal . . . at no great expense.

This was done and he reports, 9th January, 1824, having moved to the basement Sir William Hamilton's Vesuvian Collection. However, he came to regret this move for four years later (11th January, 1828), he reported that " he has employed part of his time in selecting from the minerals and rock-specimens in the basement story all such as appeared worthy of being preserved and depositing the refuse in boxes in the cellar. Mr. Konig thinks it his duty to state that the N.W. room in the basement storey is so excessively damp that many of the articles kept there in drawers and among which are those brought from various expeditions have much suffered and several of the tickets and paper boxes in the drawers nearest the floor are completely destroyed by it ". Perhaps owing to this sad state of affairs Ross's specimens from the vicinity of the North Pole had joined the refuse in the boxes in the cellar.

In the meantime the Admiralty had presented the rocks collected during an expedition in 1822–24 to northern and central Africa by Dixon Denham, Hugh Clapperton and Dr. Walter Oudney. Konig briefly described the specimens in an Appendix to the narrative of the expedition published in 1826.

Specimens collected by Lieutenant (later Admiral Sir) Edward Belcher from Kotzebue Sound, Alaska, and from the neighbourhood of San Francisco on Captain Beechey's expedition to the Pacific and the Behring Straits in 1825–28 were presented by the Admiralty in 1828, and the next year from Lord Prudhoe (afterwards Fourth Duke of Northumberland) came a set of specimens collected on an excursion from Cairo into Arabia Petrea in August and September, 1828. During his evidence before the Select Committee in 1835, when asked whether this collection was of considerable value, Konig replied that the specimens were chiefly interesting from their locality, " the Holy Land ".

One more collection came from the Admiralty in 1831 or soon after. This consisted of specimens from various localities on the shores of the Straits of Magellan and Tierra del Fuego collected in 1829 and 1830 during the surveying voyage of H.M.S. *Beagle* commanded by Captain Robert Fitzroy. This was the voyage previous to that on which Charles Darwin sailed with Fitzroy in 1831.

The last of these early collections presented by the Admiralty during Konig's time consisted of the specimens collected during the voyage of Rear-Admiral Sir (then Captain) James Clark Ross in Southern and Antarctic Regions during the years 1839–43. Geological notes on this expedition were written by Robert M'Cormick, Surgeon to the Expedition and were published as an appendix to Ross' account of the voyage. Konig did not describe any of the rocks of this collection, presumably because he knew M'Cormick was writing up the geological notes. Years later, in 1890, there came to the Museum under the will of Deputy Inspector-General M'Cormick more specimens of this collection and in 1899 some of these were described by G. T. Prior. Among the specimens were some taken by M'Cormick from the gizzards of penguins and the stomachs of seals. Had these been examined and identified by M'Cormick or Konig they might have realized that in them they had evidence of the

presence of metamorphic and igneous rocks on the beaches of the Antarctic continent. Other evidence from the beaches of the continent was not obtained for over fifty years, when members of the Southern Cross Expedition (1898–1900) landed at Cape Adare.

APPENDIX II

Brief notes on the meteorites acquired in the early days of the British Museum

A history of the collection of Meteorites in the Museum has been written by Sir Lazarus Fletcher and published in successive editions of his guide-book, " An introduction to the study of meteorites " and in " The History of the Collections . . . " where there is also a chronological list of the meteorites acquired from 1753 to 1903.

When Konig joined the museum staff there were only seven meteorites in the Mineral Collection: a fragment of Krasnojarsk, the Pallas Iron, a Stony-Iron, had been presented by the Academy of Sciences in St. Petersburg (Leningrad) in 1776. This, in accordance with the ideas of that time, was exhibited as a specimen of native iron (see above, p. 241). Small fragments of Otumpa, a very large iron meteorite found in Argentina, were presented by the Royal Society in 1778, and three others (Stones), Benares, Wold Cottage, and Siena, were presented by Sir Joseph Banks in 1802 and 1803, and specimens of the famous L'Aigle fall were presented by Professor Biot in 1804. One piece of an iron meteorite, Siratik, from Senegal, was in the Hatchett collection purchased in 1799.

Soon after Konig's appointment seven more meteorites were acquired with the Greville Collection (see p. 242). After that there were occasional acquisitions among which the most notable was the large mass of the Otumpa iron, 1,400 lb. (634 kg.) presented by Sir Woodbine Parish in 1838. At the time of Konig's death in 1851, 70 falls were represented and two more specimens were presented in 1856 and 1857, one of which, Imilac, was already represented by a large specimen, 9 kg., presented by Sir Woodbine Parish in 1828. It was on this basis of 71 represented falls that Nevil Story-Maskelyne built up the collection which, in his day, rivalled that of Vienna, and which is now one of the largest in the world.

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